

October 18, 2016

California Resources Corporation (CRC) Option on Oil Price

Symbol	CRC	Ebitda Next Twelve Months ending 9/30/17 (US\$mm)	713
Rating		North American Natural Gas/Ebitda (%)	11
Price (\$/sh)	11.52	Natural Gas and Oil Production/Ebitda (%)	100
Pricing Date	10/18/16	Adjusted Reserves/Production NTM	12.0
Shares (mm)	40	EV/Ebitda	10.2
Market Capitalization (\$mm)	500	PV/Ebitda	12.3
Debt (\$mm)	6,800	Undeveloped Reserves (%)	25
Enterprise Value (EV) (\$mm)	7,300	Natural Gas and Oil Ebitda (\$/boe)	15.20
Present Value (PV) (\$mm)	8,800	Present Value Proven Reserves(\$/boe)	13.66
Net Present Value (\$/share)	50	Oil and Gas Ebitda Margin (%)	41
Debt/Present Value	0.77	Earnings Next Twelve Months (US\$/sh)	-5.87
McDep Ratio - EV/PV	0.82	Price/Earnings Next Twelve Months	-2
Dividend Yield (%/year)	0.0	Indicated Annual Dividend (US\$/sh)	0.00
Note: Estimated cash flow and e	arnings tied to one	-year futures prices for oil and natural gas.	
Reported results may vary	widely from estin	nates. Estimated present value per share revised only infrequ	ently.
Estimated present value p	resumes a long-ter	m price for oil of US\$70 a barrel and natural gas, \$4.00 a mi	llion btu

Summary and Recommendation

Down some 90% from its initial price two years ago, the common stock of **California Resources** (CRC) may have its best value as an option on oil price in tax-deferred accounts or as a tax loss in taxable accounts. Though the McDep Ratio looks attractive at 0.83, debt exposure is extraordinary as measured by Enterprise Value (EV) to Market Cap near 16 times (see Table 1 on page 2). Similarly, appreciation potential to Net Present Value (NPV) of \$50 looks great until it is paired with a high 0.77 ratio of Debt to Present Value (see <u>Table 2</u> on page 3). Previous owner **Occidental Petroleum (OXY)** set the threatening debt level in 2014 before distributing CRC shares to OXY stockholders in late 2014. Irrespective of the financial structure, oil and gas cash flow appears neutrally valued in the market place for today's conditions at an unlevered multiple of 10 times, which matches the median for 24 stocks (see Table 3 on page 4). Nonetheless, the high level of debt contributed to the worst stock price performance for the year (see Table 4 on page 5). Meanwhile, current futures prices point to an upward trend in cash flow (see table Operating and Financial Estimates on page 6). Cash flow in turn supports estimated NPV concentrated 84% on oil (see table Present Value on page 7). To its credit, management has kept control in the face of financial challenges while preserving upside for equity holders. The upside and the downside depend largely on oil price. We think the current price at about \$50 a barrel will reach \$70 before any unlikely decline to \$30 again. Economically, negative real interest rates are good for oil. Politically, the Mideast oil producing region looks increasingly unstable.

Kurt H. Wulff, CFA



En	tornric		Mcl								
En	tornric		141 ()	vep En	ergy Stoc	eks					
	itei hi is	e '	Value, S	Segmen	ts, Yield a	and Mo	Dep R	atio			
						Preser	ıt Value by	Seamer	nt (%)		
			Price			North	Rest of	Beginer	(70)	Dist.	
			(US\$/sh)	EV/	Enterprise	Amer.	World			Yield	
Sı	mbol/Rati	ina	18-Oct	Market	Value	Natural		Oil	Down-	NTM	McDep
	moorkan	ng	2016	Сар	(\$mm)	Gas		Prod'n		(%)	Ratio
Global Integrated			2010	Сир	(\$mm)	Gus	Ous	1 roun	streum	(/0)	Kano
Exxon Mobil Corporation	XOM		86.77	1.26	457,000	6	16	55	23	3.5	0.89
Chevron Corporation	CVX		101.79	1.35	257,000	2	13	66	19	4.2	0.81
Royal Dutch Shell	RDS-A	В		1.68	338,000	2	21	53	24	7.4	0.74
Total S.A.	TOT	В		1.51	175,000		20	58	22	5.5	0.74
Total or Median	101	ъ	40.54	1.43	1,227,000		20	56	23	4.9	0.04
Large Independent				1.73	1,227,000			50	23	7.2	0.77
EOG Resources, Inc.	EOG		93.13	1.14	58,300	11	1	87		0.7	1.20
Occidental Petroleum Corp.	OXY		72.57	1.14	65,400	4	2	86	7	4.1	0.97
Devon Energy Corporation	DVN		41.90	1.50	32,900	25		66	10	0.6	0.97
Marathon Oil Corporation	MRO	В		1.63	19,700	10	2	88	10	1.4	0.93
ConocoPhillips	COP	В		1.78	90,000	13	13	75		2.5	0.80
Total or Median	COI	ъ	40.03	1.50	266,000	11	13	86		1.4	0.71
Small Independent				1.50	200,000	11		80		1.4	0.93
Cimarex Energy Company	XEC		136.93	1.10	14,000	34		66		0.2	1.13
Continental Resources (32%)	CLR	В		1.10	8,400	22		78		0.2	0.94
Range Resources	RRC	ь	38.07	1.45	13,400	77		23		0.2	0.94
Whiting Petroleum Corporation	WLL		8.36	3.01	7,200	10		90		- 0.2	0.93
California Resources	CRC			15.78		16		84		-	0.87
Total or Median	CRC		11.52	1.45	7,300 50,000	22		78		-	0.83
				1.43	30,000	22		/0		-	0.93
Income	SJT		((1	1.00	210	100		_		9.7	0.02
San Juan Basin Royalty Trust Dorchester Minerals, L.P.	DMLP	В	6.61 16.00	1.00	310 490	28		72		7.9	0.83
	PBT	D	7.08	1.00	330	23		77		10.3	0.67
Permian Basin RT											
Cross Timbers Royalty Trust	CRT	В	18.16	1.00	110 540	57		43 52		8.0	0.63
Sabine Royalty Trust	SBR	В	37.17	1.00		48				8.2	0.62
Total or Median				1.00	1,800	48		52		8.2	0.64
Canada	EG.		11.12	1.70	10.200	40				0.7	1.25
EnCana Corporation	ECA		11.12	1.79	19,300	43		57	2.5	0.5	1.35
Imperial Oil Limited (30%)	IMO		32.51	1.34	11,100	0		63	36	1.4	0.89
Suncor Energy	SU		28.93	1.37	66,100	- 10		79	21	3.1	0.87
Cenovus Energy Inc.	CVE		15.46	1.31	16,900	10		79	12	1.0	0.82
Birchcliff Energy Ltd.	BIREF	В	7.01	1.34	2,500	74		26		- 1.0	0.76
Total or Median				1.34	116,000			63		1.0	0.87
Estimated present value presumes						l natural ga	as, \$4.00 a	million l	otu.		
Estimated present value capped by											
McDep Ratio = Market cap and D For historical research see www.r			it value of o	oil and gas	and other bus	inesses					



			Table 2					
	Mc	Dep	Energy	Stocks				
Net	Preser	ıt Va	lue and	McDep	Ratio			
			Price			Net		
			(US\$/sh)		Market	Present	Debt/	
	Symbol/R	ating	18-Oct	Shares	Cap	Value	Present	McDep
		= Buy	2016	(mm)	(US\$mm)	(US\$/sh)	Value	Ratio
Global Integrated					, , ,	, ,		
Exxon Mobil Corporation	XOM		86.77	4,178	363,000	100.00	0.18	0.89
Chevron Corporation	CVX		101.79	1,872	191,000	135.00	0.21	0.81
Royal Dutch Shell	RDS-A	В	50.62	3,980	202,000	80.00	0.30	0.74
Total S.A.	TOT	В	48.54	2,379	116,000	90.00	0.22	0.64
Total or Median				,	872,000		0.21	0.77
Large Independent					,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,			
EOG Resources, Inc.	EOG		93.13	547	50,900	75.00	0.15	1.20
Occidental Petroleum Corp.	OXY		72.57	764	55,400	75.00	0.15	0.97
Devon Energy Corporation	DVN		41.90	524	22,000	45.00	0.32	0.95
Marathon Oil Corporation	MRO	В	14.20	848	12,040	20.00	0.31	0.80
ConocoPhillips	COP	В	40.65	1,245	51,000	70.00	0.31	0.71
Total or Median	001		10.05	1,213	191,300	70.00	0.31	0.95
Small Independent					171,500		0.51	0.73
Cimarex Energy Company	XEC		136.93	93	12,800	120.00	0.10	1.13
Continental Resources (32%)	CLR	В	51.56	118	6,100	56.00	0.26	0.94
Range Resources	RRC		38.07	244	9,300	42.00	0.29	0.93
Whiting Petroleum Corporation	WLL		8.36	285	2,400	12.00	0.58	0.87
California Resources	CRC		11.52	40	500	50.00	0.77	0.83
Total or Median	CKC		11.52	40	31,000	30.00	0.77	0.83
Income					31,000		0.29	0.93
San Juan Basin Royalty Trust	SJT		6.61	47	310	8.00	_	0.83
Dorchester Minerals, L.P.	DMLP	В	16.00	31	490	24.00	-	0.67
Permian Basin RT	PBT	ь	7.08	47	330	11.00	-	0.64
Cross Timbers Royalty Trust	CRT		18.16	6	110	29.00	-	0.63
Sabine Royalty Trust	SBR	В	37.17	15	540	60.00	-	0.63
Total or Median	SDK	D	37.17	13	1,800	00.00	-	0.64
Canada					1,000		-	0.04
EnCana Corporation	ECA		11 12	072	10.900	6.00	0.50	1.35
Imperial Oil Limited (30%)	ECA IMO		11.12 32.51	973 255	10,800 8,300	6.00 38.00	0.59	0.89
•	-							
Suncor Energy	SU		28.93	1,665	48,200	35.00	0.24	0.87
Cenovus Energy Inc.	CVE	P	15.46	833	12,900	20.00	0.20	0.82
Birchcliff Energy Ltd.	BIREF	В	7.01	263	1,800	10.00	0.19	0.76
Total or Median					82,000		0.22	0.87
Estimated progent value		fon all	of HCC70	homel 1	notimal f	4 00 o:11:	on http:	
Estimated present value presumes a long-t					naturai gas, \$	4.00 a milli	on old.	
Estimated present value capped by unlever								
McDep Ratio = M arket c ap and De bt to p r For historical research see www.mcdep.co		e 01 01	i and gas and	ı omer busi	nesses			



			Table 3					
	Mc	Dep	Energy	Stocks				
,			iples and		d			
			by EV/I					
			- ~ j = \ \ \ -					
			Price	Adjustd				
			(US\$/sh)	Resrvs/	PV/	EV/		Dividend
S	ymbol/Ra	ting	18-Oct	Prod	Ebitda	Ebitda	P/E	NTM
	B =	Buy	2016	NTM	NTM	NTM	NTM	(\$/sh
Global Integrated								
Exxon Mobil Corporation	XOM		86.77	14.5	11.6	10.3	24	3.00
Chevron Corporation	CVX		101.79	9.2	11.8	9.5	35	4.28
Royal Dutch Shell	RDS-A	В	50.62	9.8	10.7	7.9	24	3.76
Total S.A.	TOT	В	48.54	9.9	10.0	6.4	13	2.68
Median				9.8	11.1	8.7	24	
Large Independent								
EOG Resources, Inc.	EOG		93.13	8.2	12.6	15.2		0.67
Devon Energy Corporation	DVN		41.90	8.4	14.5	13.8		0.24
Occidental Petroleum Corp.	OXY		72.57	8.3	13.5	13.2		3.00
Marathon Oil Corporation	MRO	В	14.20	12.7	13.2	10.6		0.20
ConocoPhillips	COP	В	40.65	11.3	14.5	10.3		1.00
Median				8.4	13.5	13.2		
Small Independent								
Continental Resources (32%)	CLR	В	51.56	11.4	16.2	15.2		-
Cimarex Energy Company	XEC		136.93	6.9	13.1	14.8		0.32
Range Resources	RRC		38.07	12.6	14.9	14.0		0.08
California Resources	CRC		11.52	12.0	12.3	10.2		-
Whiting Petroleum Corporation	WLL		8.36	9.5	10.3	9.0		-
Median				11.4	13.1	14.0		
Income								
Sabine Royalty Trust	SBR	В	37.17	9.1	19.7	12.2	12	3.04
Dorchester Minerals, L.P.	DMLP	В	16.00	7.0	17.1	11.4	15	1.26
Cross Timbers Royalty Trust	CRT		18.16	8.1	17.5	11.0	13	1.45
San Juan Basin Royalty Trust	SJT		6.61	10.4	12.0	9.9	10	0.64
Permian Basin RT	PBT		7.08	8.5	14.3	9.2	10	0.73
Median				8.5	17.1	11.0	12	
Canada								
EnCana Corporation	ECA		11.12	5.6	10.4	14.0		0.06
Imperial Oil Limited (30%)	IMO		32.51	33.2	10.7	9.5		0.46
Suncor Energy	SU		28.93	21.6	11.2	9.7		0.88
Cenovus Energy Inc.	CVE		15.46	16.6	11.2	9.2		0.15
Birchcliff Energy Ltd.	BIREF	В	7.01	12.9	11.4	8.6		_
Median				16.6	11.2	9.5		
Grand Median				10	13	10		
EV = Enterprise Value = Market Cap and D								
and amortization; NTM = Next Twelve Mor Earnings; PV = Present Value of oil and gas						see www.mc		



	Mc	Dep Ene	ergy Sto	ocks					
Total	Re	eturn Ye	ar-to-D	ate 201	16				
Ranke	d b	y Unleve	red To	tal Ret	urn				
	Н	D :	ъ.			F '.		, ,	
	\vdash			Duine	Canh		Un		
Comb of	Dat						Doba		McDep
Symbol	Kai								Ratio
	Н	2010	2013	(70)	(70)	(70)	(φ/3π)	(70)	Кано
CVV		101.79	80.06	13	1	17	36	12	0.81
	\vdash								0.89
	D								0.89
	_								0.74
	D	46.34	44.93		3		23		0.04
				11		13	-	10	0.//
FOG		02 12	70.70	32	1	22	12	27	1.20
									0.95
	B								0.80
	ь								0.80
	P								0.71
	ь	40.03	40.03	` /		_ ` /	32		0.71
	\vdash			13		14		9	0.93
CLD	P	51.56	22.08	124		124	10	68	0.94
	ь								1.13
									0.93
									0.93
				` /		` /		- '	0.83
	Н	11.32	23.30		-	. ,	170		0.83
				33		33		32	0.93
DMI D	D	16.00	0.80	62	6	69		69	0.67
	ь								0.83
	D								0.63
	D				-				0.62
	\vdash								0.63
		7.08	3.00		0		-		0.64
	\vdash			42		47		47	0.04
BIDEE	D	7.01	2.02	120		120	2	77	0.76
	D								1.35
	\vdash				-				0.82
	\vdash								0.82
	\vdash								0.87
-	\vdash	32.31	32.32		1		11	-	0.89
	\Box					23		1/	0.07
				27		28		1.8	0.83
		2 26	2 22			20		10	0.03
	\Box								
		4,140	4,044	ر					
	Total Ranke	Total Received by Ranked by Symbol/Rate CVX XOM RDS-A B TOT B STOT BOOK BOOK BOOK BOOK BOOK BOOK BOOK B	Price	Total Return Year-to-D Ranked by Unlevered To Price	Price	McDep Energy Stocks Total Return Year-to-Date 2016 Ranked by Unlevered Total Return Price (\$/s/sh) (\$/s/sh) (\$/s/sh) (\$/s/sh) Symbol/Rat 18-Oct 31-Dec Change Distrib. CVX 101.79 89.96 13 4 XOM 86.77 77.95 11 3 RDS-A B 50.62 45.79 11 6 TOT B 48.54 44.95 8 5 EOG 93.13 70.79 32 1 DVN 41.90 32.00 31 1 MRO B 14.20 12.58 13 1 OXY 72.57 67.61 7 3 COP B 40.65 46.69 (13) 2 AXEC 136.93 89.38 53 0 RRC 38.07 24.62 55 0 WLL 8.36 9.44 (11) - CRC <td> McDep Energy Stocks Total Return Year-to-Date 2016 Ranked by Unlevered Total Return Price Price (\$\script{Symbol/Rat}\$ 18-Oct 31-Dec Change Distrib. Return 2016 2015 (%) (%) (%) (%) CVX</td> <td> Price</td> <td> McDep Energy Stocks Total Return Year-to-Date 2016 Ranked by Unlevered Total Return Price Price (\$\s/sh) (\$</td>	McDep Energy Stocks Total Return Year-to-Date 2016 Ranked by Unlevered Total Return Price Price (\$\script{Symbol/Rat}\$ 18-Oct 31-Dec Change Distrib. Return 2016 2015 (%) (%) (%) (%) CVX	Price	McDep Energy Stocks Total Return Year-to-Date 2016 Ranked by Unlevered Total Return Price Price (\$\s/sh) (\$



					s Corporati					
	Nex	t Twelve	Months ()perating	and Financ	cial Estin	nates			
										Next
										Twelve
	Q3	Year	Q2	Q3E	Q4E	Year	Q1E	Q2E	Q3E	Months
	9/30/15	2015	6/30/16	9/30/16	12/31/16	2016E	3/31/17	6/30/17	9/30/17	9/30/17
Volume										
Natural Gas (bcf)	20.8	83	18.4	18.0	17.5	72	17.1	16.8	16.5	67.8
Natural Gas (mmcfd)	226	228	202	196	190	196	190	184	179	186
Days	92	365	91	92	92	365	90	91	92	365
Oil (mmb)	11.1	45	9.6	9.5	9.2	39	9.0	8.8	8.6	36
Oil (mbd)	121	122	106	103	100	106	100	97	94	98
Total (mb)	14.6	58.5	12.7	12.5	12.1	50.6	11.8	11.6	11.4	46.9
Total (mbd)	159	160	140	135	131	139	131	127	124	128
Price										
Henry Hub (\$/mmbtu)	2.76	2.67	1.95	2.81	3.23	2.52	3.60	3.29	3.31	3.36
Differential (\$/mmbtu)	(0.07)	0.05	0.29	0.42	0.48	0.32	0.54	0.49	0.50	0.50
Company (\$/mcf)	2.83	2.62	1.66	2.39	2.74	2.20	3.06	2.80	2.81	2.85
WTI Cushing (\$/bbl)	46.39	48.79	45.66	44.91	50.09	43.53	51.40	52.62	53.26	51.84
Differential	3.20	5.31	7.09	6.98	7.78	7.05	7.99	8.18	8.28	8.08
Company (\$/bbl)	43.20	43.48	38.56	37.93	42.31	36.48	43.41	44.44	44.99	43.76
Total (\$/bbl)	36.97	36.88	31.67	32.24	36.07	31.00	37.38	37.78	38.21	37.34
Revenue (\$mm)										
Natural Gas	59	218	31	43	48	158	52	47	46	194
Oil	481	1,940	372	359	388	1,409	390	391	388	1,558
Total	540	2,158	402	402	436	1,567	442	438	435	1,751
Expense		,				,				, -
Production	246	951	188	184	178	734	174	171	168	692
Production taxes	42	180	42	42	42	165	38	38	38	156
General and administrative	67	292	61	50	49	227	48	47	46	190
Total	355	1,423	291	276	269	1,127	260	256	252	1,038
Ebitda	185	735	111	126	167	440	182	182	183	713
Exploration	5	34	5	5	5	20	9	9	9	32
Deprec., Deplet., & Amort.		1,004	138	218	212	715	207	203	199	821
Other	(26)	(158)	5	210	212	(30)	207	203	1//	-
Ebit	(47)	(145)	(36)	(98)	(50)	(264)	(34)	(30)	(25)	(139)
Interest	82	326	74	74	74	296	49	49	49	221
Ebt	(129)	(471)	(110)	(172)		(560)	(83)	(79)	(74)	(360)
Income Tax	(45)	(165)		(60)		(196)	(29)	(28)	(26)	(126)
Net Income (\$mm)	(84)	(306)	(72)	(112)	. ,	(364)	(54)	(51)	(48)	(234)
Per Share (\$)	(2.20)	(8.00)	(1.80)	(2.79)		(9.21)	(1.36)	(1.28)	(1.21)	(5.87)
Shares (millions)	38	38	40	40	40	40	40	40	40	40
Ebitda Margin	34%	34%	28%	31%	38%	28%	41%	42%	42%	41%
Tax rate	35%	35%		35%	35%	35%	35%	35%	35%	35%



October 18, 2016

California	Resources C	Corporation	1							
Functional Ca	sh Flow and	Present Va	alue							
Present										
I	VTM Ebitda	Adjusted	PV/	Value						
	(US\$mm)	<u>R/P</u>	<u>Ebitda</u>	(US\$mm)						
North American Natural Gas	79	9.5	17.8	1,400	16%					
Oil	635	12.8	11.7	7,400	84%					
	713	12.0	12.3	8,800	100%					
Debt (US\$mm)					6,800					
Net Present Value (US\$mm)					2,000					
Shares (mm)					40					
Net Present Value - Standard Estimate (US\$/sh)					50					
NPV Approximation by Cash Flow Multiple Depe	ending on Res	serve Life (U	JS\$/sh)		80					

Disclaimer: This analysis was prepared by Kurt Wulff, Manager of McDep LLC. The firm used sources and data believed to be reliable, but makes no representation as to their accuracy or completeness. This analysis is intended for informational purposes and is not a solicitation to buy or sell a security. Past performance is no guarantee of future results.

McDep or its employees may take positions in stocks the firm covers for research purposes. No trades in a subject stock shall be made within a week before or after a change in recommendation.

Certification: I, Kurt H. Wulff, certify that the views expressed in this research analysis accurately reflect my personal views about the subject securities and issuers. No part of my compensation was, is, or will be directly or indirectly related to the specific recommendations or views contained in this research analysis.

Research Methodology/Ratings Description: McDep LLC is an independent research originator focused on oil and gas stocks exclusively. The firm applies the forty years of experience of its analyst to estimate a present value of the oil and gas resources and other businesses of covered companies. That value is compared with a company's stock market capitalization and debt. Stocks with low market cap and debt relative to present value tend to outperform stocks with high market cap and debt relative to present value. Buy recommendations are expected to deliver a total return better than 7% per year above inflation. Hold recommendations assume the attributes of the underlying business are reflected in the current price of the stock. Sell recommendations are expected to deliver a total return less than inflation.